EarthWatch Rhode Island

Topic: Cesspools And Septic Systems: What You Don't Know *Can* Hurt You!

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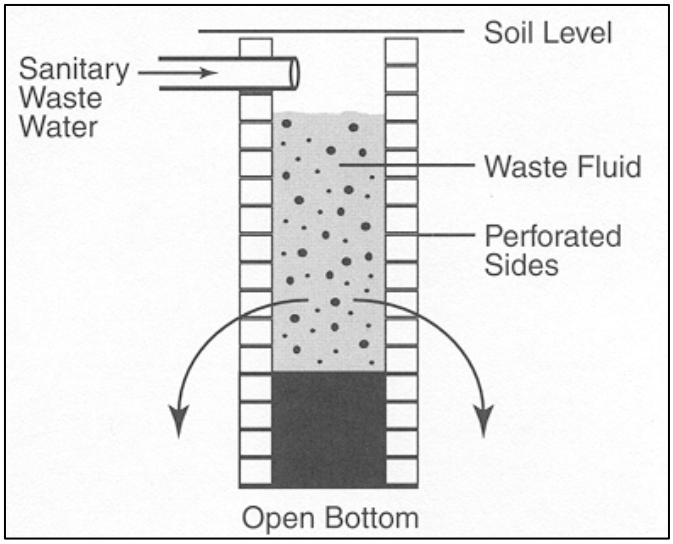
Rhode Islanders generate over 150 million gallons of wastewater every day. In many areas, wastewater is collected by wastewater treatment facilities (WWTFs) and purified before it finds its way back into our rivers, lakes or bays. However, nearly one third of the state's households dispose of sewage into the ground in their own backyards. These households use various underground tanks, perforated chambers and piping systems to empty some *twenty-five million gallons* of wastewater into the ground *each day*. Those systems meeting state standards do an adequate job of treating that wastewater before it reaches the groundwater below the yard. Treatment involves removing disease causing organisms, separating-out difficult to treat solids, fats, oils and grease, eliminating nuisances such as odor and unsightly condition, and removing excess nutrients. Substandard and failing on-site systems however do not perform to this level, present added health risks, and are considered a leading cause of water pollution in Rhode Island.

There are two main types of on-site wastewater systems in use today:

- **Cesspools -** Cesspools are typically concrete cylinders with open bottoms and/or perforated sides. Waste from toilets, sinks, and washing machines are deposited into the cesspool and percolate out the bottom or sides. This untreated sewage can enter shallow groundwater and contaminate drinking water wells. Cesspools present high risks for impacting public health and the environment. All cesspools are considered substandard and new construction of them has effectively been banned since 1968. DEM estimates there are still about 40,000 cesspools throughout the state.

  The recently adopted Rhode Island Cesspool Act of 2007 requires mandatory inspection and phase-out of cesspools that are located in close proximity to sensitive resources, such as tidal waters and public drinking water supplies. Once the law takes effect in June 2008, cesspools that have failed will be required to be replaced within one (1) year or sooner. Cesspools that are located in environmentally sensitive areas will be phased-out by 2013 in accordance with a schedule to be developed by DEM. Some communities, such as



The picture above shows the design of a typical cesspool. Photo courtesy of USEPA.

Charlestown (see community profile below), have more stringent ordinances. In this case, homeowners must comply with the local ordinance and are exempt from the law. Low interest loans are available for cesspool replacements to residents in some communities.

Septic Systems (aka. On-site Wastewater Treatment Systems) - Septic systems, when properly installed and maintained, are much healthier for the environment. As opposed to a cesspool, the systems have a septic tank, a distribution box *and* a drain or leach field. The wastewater sits in the septic tank until the solids settle to the bottom. The remaining liquid then passes through the distribution box where it is evenly distributed to the drain or leach field where microbes digest or remove most contaminates before they reach the groundwater. Some advanced systems use additional treatment steps and controls that offer higher levels of treatment before wastewater is released back into the groundwater system.

A septic system protects the environment better than a cesspool when properly installed and maintained.

What Every RI Homeowner Should Know

There are numerous ways to minimize the potential impacts that on-site wastewater systems may have on the environment and to avoid unnecessary and expensive repair and replacement costs. These include:

- Know your local on-site wastewater treatment requirements. Your city or town may have specific requirements for inspection, maintenance and replacement.
- If you have a cesspool, learn about the new state law requiring mandatory replacement. DEM has developed a fact sheet on the specifics of the law.
- Inspect your system every one to three years and follow through with needed repairs or pumping. URI fact sheets offer do-it-yourself guidance or you can hire a qualified inspector. DEM maintains a list of registered inspectors.
- Conserve water to reduce the load on your system. Hydraulic overload is a major cause of septic system failure. Low flow plumbing fixtures, faucets, and showerheads will minimize the amount of water entering a septic system.
- Take care of the drain or leach field. Trees and shrubs with deep penetrating roots should not be planted near the drain field because the roots can plug the perforated pipe structure. Heavy vehicles and equipment should not be driven or parked over the drain field because their weight can compact the soils and damage drain field components.
- Limit the types and amounts of wastes poured down the drain. Garbage disposals can nearly double the amount of solids added to the septic tank and should be used sparingly, or not at all. Cooking oils and fats harden after disposal and block the septic tank inlet, or outlet, and even clog the soil pores surrounding the drain field, reducing its effectiveness for filtrating wastewater. In addition, chemicals like paints, solvents, and pesticides

should not be dumped down the drain. These items may kill microorganisms living in the soil that help purify wastewater and can potentially enter into groundwater and contaminate drinking water supplies.

Side note: If you have a cesspool or septic system, even if it's no longer used, make sure the access covers are in good condition. They can present a hazard, especially for young children. Covers should fit securely on the below ground tank or access hole, and be either fastened to it or heavy enough (60 pounds or more) to prevent tampering by children. If you are unsure about the adequacy or condition of the cover, have it inspected by a qualified professional..

Community Profile: Charlestown

Charlestown is entirely dependent upon groundwater for its drinking water supply and upon onsite treatment of wastewater, as there are no sewers. Failing septic systems have caused the closure of shell fishing beds and nutrient enrichment, largely from septic systems, have contributed to the loss of eel grass (critical for marine life). What were once small summer cottages have now become year-round homes for many, causing septic system management to become even more critical. Charlestown established its own cesspool phase-out program; the remaining functioning cesspools in town — about 300 — are pumped and inspected annually, and are scheduled to be replaced by 2009. Ten-year loans of up to $25,000 at 2 percent interest have been offered by the town and Rhode Island Housing to help homeowners with the cost of repair and replacement of failing septic systems and cesspools

Interviews:

- Russell Chateaneauf, P.E**.,** Chief, Groundwater and Wetlands Protection provided an overview of the key issues related to septic systems and cesspools.
- Brian Moore, P.E. ISDS Program Supervisor described various on-site wastewater treatment systems and problems and what homeowners should know.
- Diane Johnson, P.E., On-site Wastewater Specialist, Town of Charlestown discussed the Town of Charlestown's on-site wastewater treatment ordinance and the results of adopting the ordinance.

Additional Resources:

- DEM Website: http://www.dem.ri.gov
- List of designers – Note: Class 1 designers are also licensed installers and can replace septic tanks as well as prepare applications for DEM permits for tank replacements:

  http://www.dem.ri.gov/programs/benviron/water/licenses/isds/pdfs/deslist.pdf

- ISDS permit search where one can input a query about designers and contractors that generally work in your neighborhood:

  https://www.ri.gov/DEM/isdssearch/

- Septic System Check-up: The Rhode Island Handbook for Inspections

  Used by many professionals to inspect and evaluate existing septic systems

  http://www.dem.ri.gov/pubs/regs/regs/water/isdsbook.pdf

- URI- New England Onsite Wastewater Training Center (NE OWTC) Registered Inspectors - Conventional Systems and I & A Systems

  List of registered septic system inspectors

  http://www.uri.edu/ce/wq/OWT/Inspectors/ConvSepticInspectors.pdf

- Information about Charlestown's On-site Wastewater Treatment Program

  http://www.uri.edu/ce/wq/RESOURCES/wastewater/RI_Towns/Charlestown.htm